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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,438	09/05/2003	Edward J. Seppi	VM7010742001	8465

23639 7590 10/17/2006
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EXAMINER

THOMAS, COURTNEY D

ART UNIT PAPER NUMBER

2882

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,438

Applicant(s)

SEPPI ET AL.

Examiner

Courtney Thomas

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31, 33-39, 42-49 and 54-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-29, 30, 31, 33-39, 42-44, 46 and 55-60 is/are allowed.
- 6) ☒ Claim(s) 45, 47-49 and 54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

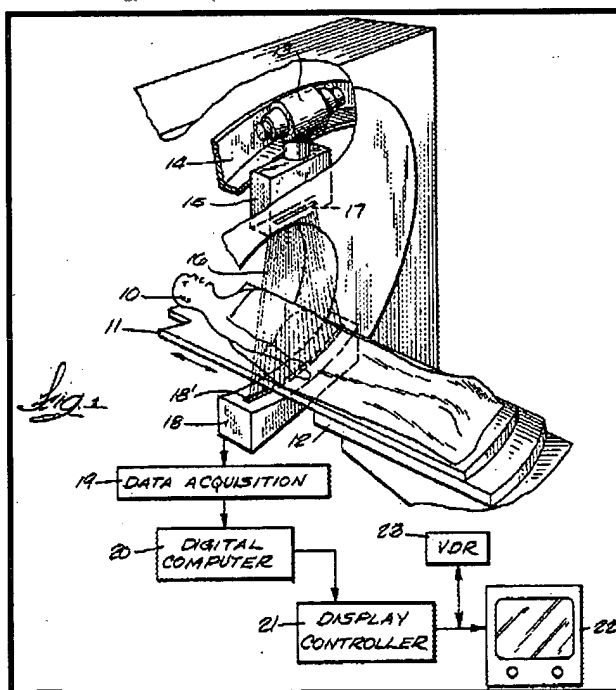
1. Applicant's arguments with respect to claims 45, 47, 48, 49 and 54 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 45 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (U.S. Patent 4,361,901) in view of Murthy (U.S. Patent 6,055,295).



4.

[57]

ABSTRACT

X-ray pulses at two different photon energy levels are produced with an x-ray tube that has an adjustable resistor element in a circuit that connects the anode and filament of the tube to a high voltage supply. Two bias

5.

Figure 1 (previous page) & Abstract (above) – Irradiation Apparatus – U.S. Patent 4,361,901 to Daniels et al.

6. As per claims 45 and 49, Daniels et al. disclose an irradiation apparatus comprising: a platform (11); a first beam source (not visible in Fig. 1, but contained in housing 13) configured to generate a first radiation beam at a first intensity and a second beam at a second intensity (Abstract); a beam adjuster (15 – Examiner note: though not explicitly recited as being a multi-leaf collimator, artisans in radiography would recognize the presence of collimator 15 as teaching/suggesting the desirability of beam shaping via collimators such as multi-leaf collimators, as currently utilized in the art); and a projection detector (18). Daniels et al. do not explicitly disclose a control module coupled to the projection detector (18) and to the beam adjuster (15), wherein the control module is configured to adjust one or a combination of a shape, an intensity, and a direction of the second radiation beam.

7. Murthy teaches an imaging system where a collimator (column 3, lines 1-2) is connected to a detector so as to reduce the amount of primary intensity radiation reaching a detector plane (Abstract). By conforming to body and non-body regions, the control module attached to the collimator adjusts at least the shape of the radiation beam. This system also reduces scattered radiation and improves image quality (Columns 1-2).

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the collimator and shape-changing control module as taught by Murthy

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in the device of Daniels et al. in order to accomplish the goal of reducing the amount of primary intensity radiation reaching the detector plane while also reducing scattered radiation and improving image quality as suggested by Murthy – (columns 1-2).

9. Claims 47, 48 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (U.S. Patent 4,361,901) and Murthy (U.S. Patent 6,055,295) and further in view of Kapatoes et al. (U.S. Patent Application Publication 2002/0150207).

10. **As per claims 47, 48 and 54**, Daniels et al. as modified above, do not explicitly disclose a control module as configured to develop a radiation treatment plan based on a first image or based on one or both of the first image and the second image.

11. Kapatoes et al. disclose a method consisting of developing a treatment plan based on first and second images of a subject (Abstract).

12. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the control module of Daniels et al., such that it is configured to develop a radiation treatment plan based on a first image or based on one or both of the first image and the second image. One would have been motivated to make such a modification for the purpose of fine tuning a treatment plan to more closely conform to features of a region, intended for radiation delivery as taught by Kapatoes et al (i.e. see Abstract).

Allowable Subject Matter

13. Claims 1-31, 33-39, 42-44, 46 and 55-60 allowed.

14. The following is a statement of reasons for the indication of allowable subject matter:

15. **As per claim 18 and dependent claims 19 and 22-25**, the examiner found no reference in the prior art that disclosed or made obvious a radiation method comprising the steps of:

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illuminating an object with a beam at a MeV energy level; determining an image of the object formed by the beam; determining configuration data and radiation absorption data using the image; and determining a radiation treatment plan based on the configuration data and the radiation absorption data, as recited in independent claim 18.

16. **As per claim 26 and dependent claims 29 and 30**, the examiner found no reference in the prior art that disclosed or made obvious a radiation system comprising: means for generating a beam at a MeV energy level for illuminating an object; means for determining an image of the object formed by the beam; means for determining configuration data and radiation absorption data using the image and means for determining a radiation treatment plan using the configuration data and the radiation absorption data, as recited in independent claim 26.

17. **As per claim 31 and dependent claims 33-38**, the examiner found no reference in the prior art that disclosed or made obvious a radiation process comprising the steps of: illuminating an object with a beam at a MeV energy level; determining an image of the object formed by the beam; determining radiation absorption data using the image; and determining a radiation treatment plan based on the radiation absorption data, as recited in independent claim 31.

18. **As per claim 42 and dependent claims 43 and 44**, the examiner found no reference in the prior art that disclosed or made obvious a radiation system comprising: means for generating a beam at a MeV energy level for illuminating an object; means for determining an image of the object formed by the beam; means for determining radiation absorption data using the image and means for determining a radiation treatment plan using the radiation absorption data, as recited in independent claim 42.

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19. Claims 1-17, 20, 21, 27, 28, 39, 46 and 55-60 remain allowed as set forth in the Office Action mailed 05/01/06.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Courtney Thomas

Courtney Thomas
Primary Examiner
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